DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT EDSM No: II.2.1.11

**ENGINEERING DIRECTIVES AND STANDARDS**

Volume : II Effective Date :
Chapter : 2 Revision Date : 09/14/2001
Section : 1 Subject : **PAVEMENT TYPE SELECTION**
Directive : 11

1. **PURPOSE**: The purpose of this directive is to establish a policy for selection of pavement types for construction or reconstruction of highways by the Louisiana DOTD.

2. **SCOPE**: The directive establishes criteria, outlines responsibilities, and identifies the data information flow necessary to accomplish pavement type selection for new construction and reconstruction of rigid pavements and flexible pavements

3. **POLICY**: It will be the policy of the Department of Transportation and Development to select a pavement type for each project based on the procedures outlined herein. Factors to be considered in determining pavement type will include, but are not limited to, the additional factors listed in the current edition of the AASHTO Guide for Design of Pavement Structures. Those factors felt to be most significant include traffic, soils characteristics, constructability, life cycle cost analysis, traffic safety (friction resistance), and municipal preference.

   The following general guidelines will be used:

   (a) Alternate section designs will be calculated for all route classes where practical and feasible, and pavement types will be compared on the basis of the life cycle cost analysis criteria established as a part of this directive.

   (b) The life cycle cost analysis, along with input from the highway district office, and local government where applicable, will be transmitted to the DOTD Pavement Structure Review Committee established herein, which will recommend the pavement type judged to be the most appropriate based on consideration of all the information provided.

   (c) The Chief Engineer will make the final selection based on information and recommendations provided by the Committee.

4. **SELECTION PROCESS**: The process for pavement type selection will produce information needed to accomplish this task based on input from the following: Road Design, District Administrators, Planning, Materials and Testing, Pavement Design, Pavement Management, Headquarters Construction, Headquarters Maintenance, and LTRC, as indicated in the information flow chart (see Attachment A) included in this directive.

   (a) DESCRIPTION OF ACTIVITIES:

      (1) Projects will be forwarded to the Road Design Engineer for design upon programming.

(2) Road Design will transmit a request for information to the appropriate District Administrator (Project Information Checklist, Attachment B).

(3) The District Administrator will complete the Project Information Checklist and transmit back to Road Design with a copy to the Chair of the Pavement Structure Review Committee.

(4) Road Design will request section thickness designs from the Pavement Design Engineer. Alternate designs will be provided where practical and feasible.

(5) The Project Manager will request traffic data from the Office of Planning and Programming and notify the Pavement and Geotechnical Design group to initiate soils classification testing.

(6) The Pavement and Geotechnical Design Group will request soil data, roadway borings, subgrade soil survey, ph and resistivity information and muck limits and depths from the District Lab.

(7) The Pavement Engineer will make the appropriate comparative designs and recommend typical sections to the Chief Engineer.

(8) The Pavement Design Engineer will then conduct a life cycle cost analysis, prepare a project information packet, and transmit the information packet to the DOTD Pavement Structure Review Committee Chairman.

(9) The Pavement Structure Review Committee will then evaluate the information included in the packet and make a recommendation to the Chief Engineer.

(b) DISTRICT PROJECT INFORMATION CHECKLIST:

The District Administrator will be responsible for providing the following information in the format included as an attachment to this directive: (1) an indication of municipal preference where applicable, (2) an indication of the adjacent pavement types, (3) and indication of maintenance preference/considerations, if any, (4) an indication of construction preference/considerations, if any, (5) a recommended pavement type, or recommended alternate pavement types, if so desired.

PROJECT SELECTION INFORMATION PACKET:

A packet of information containing the following will be compiled by the Pavement Design Engineer and distributed to the Pavement Structure Review Committee: Pavement section designs, life cycle cost analysis, district information checklist, and other information which would indicate special considerations and which may influence pavement type decisions.

(c) LIFE CYCLE COST ANALYSIS:

The life cycle cost analysis process will be performed on each pavement design using the latest cost information and performance cycles available to the Pavement Design Engineer. The difference in life cycle cost of alternates will be considered significant if greater than 20% in average annual cost is indicated over the analysis period (see attachment C).

(d) DOTD PAVEMENT STRUCTURE REVIEW COMMITTEE:

The committee has been established as an advisory group to the Chief Engineer. Members of the committee are listed in Attachment D. The committee will review all information and make a recommendation to the Chief Engineer on the most appropriate pavement type considering all factors occurring over the designated analysis period.

5. **ADDITIONAL MAJOR INFLUENCING FACTORS**:

The additional factors which may have significant influence in the pavement type selection process are discussed below. These factors will be taken into account, especially when the economic evaluation does not definitively indicate the most cost effective pavement type.

(a) TRAFFIC CONSIDERATIONS:

For heavily traveled facilities in congested locations, the need to minimize the disruptions and hazards to traffic may dictate the selection of those strategies having long initial service life with little maintenance or rehabilitation regardless of relative economics.

(b) SOILS CONSIDERATIONS:

Where differential embankment settlement is anticipated, consideration may be given to stage construction.

CONSTRUCTABILITY AND TRAFFIC CONTROL:

In some special instances traffic volume and available traffic control procedures may dictate the pavement type selected.

(c) MUNICIPAL PREFERENCE:

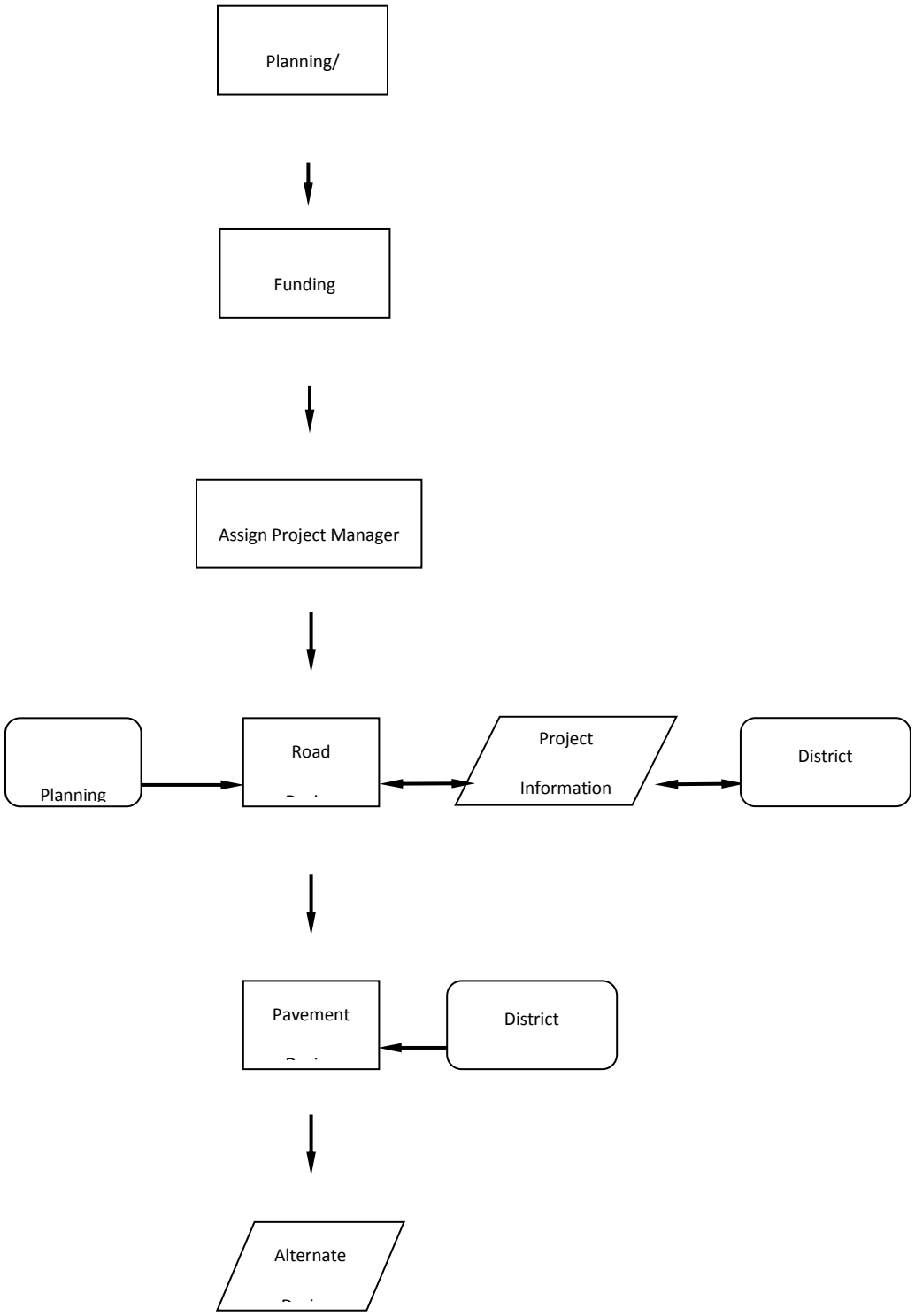
Local governments will indicate their preference upon request of the District Administrator.

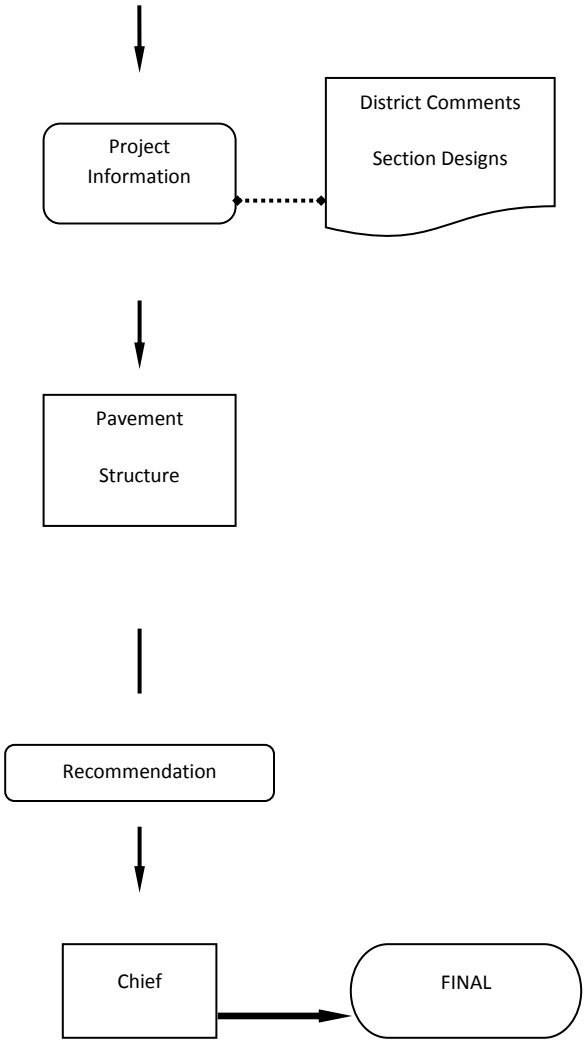
6. **OTHER ISSUANCES AFFECTED**: This directive supersedes EDSM 11.2.1.11 issued April 1, 1991.

7. **EFFECTIVE DATE**: This policy becomes effective upon receipt.

WILLIAM H. TEMPLE
CHIEF ENGINEER

# Information Flow for Pavement Type Selection




Project
Information
District Comments
Section Designs
Pavement
Structure
Recommendation
Chief
FINAL

# District Project Information Checklist

PAVEMENT TYPE SELECTION

**A) <u>Municipal Preference</u> (circle one)**

1) Portland Cement Concrete
2) Asphaltic Concrete

**B) <u>Adjacent Pavement Types</u>**

**C) <u>Maintenance Preference/Considerations (Maintenance Engineer)</u>**

1) Pavement Type (circle one)
   i. Portland Cement Concrete
   ii. Asphaltic Concrete

2) Base Type (circle one)
   i. Permeable
   ii. Cement Treated
   iii. Crushed Stone/Recycled PCCP
   iv. Asphaltic Concrete

**D) <u>Construction Preference/Considerations (Construction Engineer)</u>**

1) Pavement Type (circle one)
   i. Portland Cement Concrete
   ii. Asphaltic Concrete

2) Base Type (circle one)
   i. Permeable
   ii. Cement Treated
   iii. Crushed Stone/Recycled PCCP
   iv. Asphaltic Concrete

**E) Recommendation (optional)**

| Lifecycle Cost Analysis Periods | |
|---|---|
| **Highway Type** | **Analysis Period** |
| Interstate (New Construction) | 40 Years |
| Interstate (Rehabilitation) | 30 Years |
| 4 Lane Divided (New Construction) | 40 Years |
| 4 Lane Divided (Rehabilitation) | 30 Years |
| 2 Lane (New Construction) | 40 Years |
| 2 Lane (Rehabilitation) | 30 Years |

# PAVEMENT STRUCTURAL REVIEW COMMITTEE MEMBERS

Road Design Administrator - Committee Chair
Road Design Pavement Preservation Programs Engineer
System Construction Engineer

Roadway Maintenance Engineer
Pavement Management Engineer
Pavement Design Engineer
Pavement Research Engineer

Pavement and Geotechnical Engineer Administrator

Pavement and Geotechnical Research Engineer Administrator

DOTD Materials Engineer Administrator